

WHAT IS CLAIMED IS:

1. An electroless copper plating solution comprising copper ion, a complexing agent for copper ion, a reducing agent for copper ion and a pH adjusting agent,

wherein said reducing agent for copper ion is glyoxylic acid or a salt thereof,

said pH adjusting agent is potassium hydroxide, and

said electroless copper plating solution contains at least one member selected from the group consisting of metasilicic acid, a salt of metasilicic acid, germanium dioxide, a salt of germanic acid, phosphoric acid, a salt of phosphoric acid, vanadic acid, a salt of vanadic acid, stannic acid and a salt of stannic acid in an amount of 0.0001 mol/L or more.

2. An electroless copper plating solution comprising copper ion, a complexing agent for copper ion, a reducing agent for copper ion and a pH adjusting agent,

wherein said reducing agent for copper ion is glyoxylic acid or a salt thereof,

said pH adjusting agent is potassium hydroxide, and

said electroless copper plating solution contains at least one member selected from the group consisting of a primary amine, a secondary amine and methanol in an amount of 0.001 mol/L or more.

3. The electroless copper plating solution according to Claim 1 or 2, wherein said electroless copper plating solution further contains at least one member selected from the group consisting of 2,2'-bipyridyl, 1,10-phenanthroline, 2,9-dimethyl-1,10-phenanthroline, polyethylene glycol and polypropylene glycol.

4. The electroless copper plating solution according to Claim 1 or 2, wherein said electroless copper plating solution further contains sodium ion, iron ion, nitrate ion and nitrite ion each in an amount of 10 mg/L or less.

5. An electroless copper plating process using the electroless copper plating solution according to Claim 1 or 2,

which comprises continuously circulating and filtering the plating solution after a preparation of a plating bath but prior to a plating treatment of a body to be plated.

6. The electroless copper plating process using the electroless copper plating solution according to Claim 5,

wherein a period of time T required for continuously circulating and filtering the plating solution after a preparation of a plating bath but prior to a plating treatment of a body to be plated is a period of time satisfying:

$$Y \cdot T > 3V$$

wherein V denotes a quantity of the plating solution and Y denotes a quantity of circulation per unit time.

7. A process for producing a circuit board using the electroless copper plating solution according to Claim 1 or 2,

which comprises continuously circulating and filtering the plating solution after a preparation of a plating bath but prior to a plating treatment of a base board.

8. The process for producing a circuit board using the electroless copper plating solution according to Claim 7,

wherein a period of time T required for continuously circulating and filtering the plating solution after a preparation of a plating bath but prior to a plating treatment of a base board is a period of time satisfying:

$$Y \cdot T > 3V$$

wherein V denotes a quantity of the plating solution and Y denotes a quantity of circulation per unit time.

9. A process for producing a circuit board, which comprises:

forming a copper film by the use of the electroless copper plating solution according to Claim 1 or 2, and thereafter,

electroplating by using said copper film as a seed film for electro plating.